

Claims

1. A self-locking mechanism of a manually tightened drill chuck, comprising a ratchet wheel, a clamp bearing, at least one resilient pawl, and a clip ring wherein:

5 said ratchet wheel is fixed in connection with a main unit of said manually tightened drill chuck, and on its back there are provided ratchet teeth facing the end surface of said main unit;

10 said clamp bearing is fixed in connection with the outside surface of a screw ring on said manually tightened drill chuck, and the end surface of this clamp bearing is provided with at least one ratchet wheel slot;

 said resilient pawl is fixed on said ratchet wheel slot, and it includes a protuberance and a tooth piece; and

15 said clip ring includes at least two arc segments that can mutually antagonistically snap onto the front end position of said main unit, the outer perimeter surface of this clip ring is fixed in connection with a front cap of said manually tightened drill chuck, said clip ring is connected with said clamp bearing and drives said clamp bearing to rotate, and the end surface of said clip ring is provided with deep and shallow recesses for receiving the protuberance on said resilient pawl.

20 2. A self-locking mechanism of a manually tightened drill chuck as described in Claim 1, wherein the end surface of said clip ring is provided with at least one protuberance, and the end surface of said clamp bearing is provided with a recess corresponding with this protuberance and having a width larger than the protuberance.

25 3. A self-locking mechanism of a manually tightened drill chuck as described in Claim 1, wherein the end surface of said clip ring is provided with at least one recess, and the end surface of said clamp bearing is provided with a protuberance corresponding with this recess and having a width smaller than the recess [sic].

 4. A self-locking mechanism of a manually tightened drill chuck as described in 1, wherein said ratchet wheel is integrally formed with said main unit, and said ratchet teeth are directly formed on the end surface of said main unit.

30 5. A self-locking mechanism of a manually tightened drill chuck as described in claim 1, wherein the outer perimeter surface of said clip ring is tight-fitted with said front

cap by means of a raised rib and a recess.

6. A self-locking mechanism of a manually tightened drill chuck as described in claim 1, wherein the inner perimeter surface of said clamp bearing is tight-fitted with the outer perimeter surface of said screw ring by means of a raised rib and a recess.

5 7. A self-locking mechanism of a manually tightened drill chuck as described in claim 1, wherein said ratchet teeth are substituted by recesses, pits or holes.

8. A self-locking mechanism of a manually tightened drill chuck as described in claim 1, said resilient pawl is fixed in connection with said clamp bearing by welding, riveting or adhesion method.

10 9. A manually tightened drill chuck, comprising:
a chuck body;

means for securing a drill bit to the chuck body, the securing means being configurable in at least a first and second states, wherein the drill bit is secured to the chuck body when the securing means is configured in the first state, and is released from
15 the chuck body when the securing means is configured in the second state; and

means for locking the securing means in the first state.